What is claimed is:

- 1. An image collation apparatus comprising:
- first collation means for obtaining a
- 3 coincidence ratio between first and second images within
- 4 a printing element range for each collation unit by
- 5 collating the first and second images with each other;
- 6 minimum coincidence ratio extraction means for
- 7 obtaining a minimum coincidence ratio from coincidence
- 8 ratios obtained from said first collation means; and
- 9 determination means for determining that the
- 10 first and second images are identical, if the extracted
- 11 minimum coincidence ratio is smaller than a
- 12 predetermined threshold.
 - 2. An apparatus according to claim 1, wherein
 - 2 said apparatus further comprises first image
- 3 transformation means for repeatedly executing at least
- 4 one of translation processing and rotation processing
- 5 for the first image within a predetermined range for
- 6 each collation unit and outputting the first image after
- 7 the image processing, and
- 8 said first collation means obtains the
- 9 coincidence ratio by collating the first image output
- 10 from said first image transformation means with the
- second image every time said first image transformation
- 12 means performs image processing.

An apparatus according to claim 1, wherein

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2	anid apparatus funther comprises
2	said apparatus further comprises
3	maximum coincidence ratio extraction means for
Ţ	obtaining a maximum coincidence ratio from coincidence
5	ratios output from said first collation means, and
6	computation means for obtaining a difference
7	between the maximum coincidence ratio output from said
8	maximum coincidence ratio extraction means and the
9	minimum coincidence ratio output from said minimum
10	coincidence ratio extraction means, and
11	said determination means comprises
12	determination means for determining that the first and
13	second images are identical, if the difference output
14	from said computation means is not less than a
15	predetermined threshold.
	4. An apparatus according to claim 1, wherein
2	said apparatus further comprises
3	maximum coincidence ratio extraction means for
4	obtaining a maximum coincidence ratio from coincidence
5	ratios output from said first collation means, and
6	computation means for obtaining a quotient by

dividing the maximum coincidence ratio output from said

maximum coincidence ratio extraction means by the

minimum coincidence ratio output from said minimum

coincidence ratio extraction means, and

	11	said	determination	means	determines	that	the
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- 12 first and second images are identical, if the quotient
- 13 output from said computation means is not less than a
- 14 predetermined threshold.
 - 5. An apparatus according to claim 1, wherein
 - 2 said apparatus further comprises maximum
 - 3 coincidence ratio extraction means for obtaining a
 - 4 maximum coincidence ratio from coincidence ratios output
 - 5 from said first collation means, and
 - 6 said determination means determines that the
- 7 first and second images are identical, if the maximum
- 8 coincidence ratio output from said maximum coincidence
- 9 ratio extraction means is not less than a first
- 10 predetermined threshold and the minimum coincidence
- 11 ratio output from said minimum coincidence ratio
- 12 extraction means is smaller than a second predetermined
- 13 threshold (first threshold ≥ second threshold).
 - 6. An apparatus according to claim 2, wherein
- 2 said apparatus further comprises
- 3 second image transformation means for
- 4 repeatedly executing at least one image processing of
- 5 translation processing and rotation processing for the
- 6 first image located at a first initial position by a
- predetermined amount within a predetermined range, and
- 8 outputting the first image after image processing,

- 9 second collation means for obtaining a
- 10 coincidence ratio by collating the first image output
- 11 from said second image transformation means with the
- 12 second image every time said second image transformation
- 13 means performs image processing, and
- 14 storage means for storing a translation amount,
- 15 rotational angle, or both a translation amount and
- 16 rctational angle of the first image from the first
- information position to a current position when the
- 18 coincidence ratio output from said second collation
- 19 means becomes maximum, and
- 20 said first image transformation means moves
- 21 the first image to a second initial position set by
- 22 adding the translation, rotational angle, or translation
- 23 amount and rotational angle stored in said storage means
- 24 to the first initial position, and executes at least one
- 25 of translation processing and rotation processing for
- 26 the first image.
 - 7. An apparatus according to claim 6, wherein the
 - 2 range predetermined for said first image transformation
 - 3 means is narrower than the range predetermined for said
 - 4 second image transformation means.
 - 8. An apparatus according to claim 6, wherein a
 - 2 collation region in which said second collation means
 - 3 obtains the coincidence ratio is smaller than a

- 4 collation region in which said first collation means
- 5 obtains the coincidence ratio.
 - 9. An apparatus according to claim 6, wherein
- 2 the translation amount, rotational angle, or translation
- 3 amount and rotational angle by which said second image
- 4 transformation means moves the first image for each
- 5 moving operation are larger than the translation amount,
- 6 rotational angle, or translation amount and rotational
- 7 angle by which said first image transformation means
- 8 moves the first image for each moving operation.
 - 10. An apparatus according to claim 2, wherein
- 2 said apparatus further comprises
- 3 reference point detection means for detecting
- 4 reference points of the first and second images located
- 5 at the first initial position, and
- 6 correction amount computation means for
- 7 obtaining a translation amount, rotational angle, or
- 8 both translation amount and rotational angle of the
- 9 first image which is required to make the reference
- 10 points of the first and second image coincide with each
- ll other, and
- 12 said first image transformation means moves
- 13 the first image to a second initial position set by
- 14 adding the translation amount, rotational angle, or
- 15 translation amount and rotational angle obtained by said

- 16 correction amount computation means to the first initial
- 17 position, and executes at least one of translation
- 18 processing and rotation processing for the first image.
 - 11. An apparatus according to claim 6, wherein
 - 2 said apparatus further comprises
 - 3 reference point detection means for detecting
 - 4 reference points of the first and second images located
 - 5 at the first initial position, and
 - 6 correction amount computation means for
- 7 obtaining a translation amount, rotational angle, or
- 8 both translation amount and rotational angle of the
- 9 first image which is required to make the reference
- 10 points of the first and second image coincide with each
- 11 other, and
- 12 said second image transformation means moves
- 13 the first image to a new first initial position set by
- 14 adding the translation amount, rotational angle, or
- 15 translation amount and rotational angle obtained by said
- 16 correction amount computation means to the first initial
- 17 position, and executes at least one of translation
- 18 processing and rotation processing for the first image.
 - 12. An apparatus according to claim 1, wherein
 - 2 said apparatus further comprises region
 - 3 designation means for sequentially designating a
 - 4 plurality of collation regions predetermined as regions

- 5 in which the first and second images are collated with
- 6 each other, and
- 7 said first collation means obtains coincidence
- 8 ratios by sequentially collating the first and second
- 9 images with each other in the collation regions
- 10 designated by said region designation means.
 - 13. An apparatus according to claim 12, wherein
- 2 said apparatus further comprises computation
- 3 means for averaging minimum coincidence ratios
- 4 corresponding to the respective collation regions output
- 5 from said minimum coincidence ratio extraction means,
- 6 and
- 7 said determination means determines that the
- 8 first and second images are identical, if the minimum
- 9 coincidence ratio average output from said computation
- 10 means is smaller than a predetermined threshold.
 - 14. An apparatus according to claim 2, wherein
 - 2 said apparatus further comprises region
 - 3 designation means for sequentially designating a
- 4 plurality of collation regions predetermined as regions
- 5 in which the first and second images are collated with
- 6 each other, and
- 7 said first collation means sequentially
- 8 obtains a coincidence ratio by collating the first image
- 9 output from said image transformation means with the

- 10 second image in each collation region designated by said
- 11 region designation means every time said first image
- 12 transformation means performs image processing.
 - 15. An apparatus according to claim 14, wherein
- 2 said apparatus further comprises computation
- 3 means for averaging minimum coincidence ratios
- 4 corresponding to the respective collation regions output
- 5 from said minimum coincidence ratio extraction means,
- 6 and
- 7 said determination means determines that the
- 8 first and second images are identical, if the minimum
- 9 coincidence ratio average output from said computation
- 10 means is smaller than a predetermined threshold.
 - 16. An apparatus according to claim 14, wherein
- 2 said apparatus further comprises selection
- 3 means for comparing minimum coincidence ratios
- 4 corresponding to the respective collation regions which
- 5 are output from said minimum coincidence ratio
- 6 extraction means and sequentially outputting only a
- 7 predetermined number of minimum coincidence ratios in
- 8 increasing order, and
- 9 said computation means averages the minimum
- 10 coincidence ratios output from said selection means.
 - 17. An apparatus according to claim 1, wherein

2 said apparatus further comprises im	2	said	apparatus	further	comprises	imag
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- 3 processing means for selecting one of contraction and
- 4 expansion for one of the first and second images and
- 5 performing a plurality of different image processes, and
- said collation means collates an output from
- 7 said image processing means with an image having
- 8 undergone no image processing.
 - 18. An apparatus according to claim 2, wherein
- 2 said apparatus further comprises image
- 3 processing means for selecting one of contraction and
- 4 expansion for one of the first and second images and
- 5 performing a plurality of different image processes, and
- 6 said collation means collates an output from
- 7 said image processing means with an image having
- 8 undergone no image processing.
- 19. An apparatus according to claim 18, wherein
- 2 said image processing means performs the plurality of
- 3 different image processes by repeatedly executing image
- 4 processing for the selected image for every
- 5 predetermined amount.
 - 20. An apparatus according to claim 18, wherein
- 2 said image processing means comprises
- 3 thinning means for decreasing a line width of
- 4 an input image to a value corresponding to about one

- 5 pixel, and
- 6 expansion means for fattening the image output
- 7 from said thinning means, and
- 8 increases the line width corresponding to
- 9 about one pixel to a predetermined width, and outputs
- 10 the image.
 - 21. An apparatus according to claim 18, further
 - 2 comprising storage means for storing an image output
- 3 from said image processing means and outputting the
- 4 image to said collation means.
 - 22. An apparatus according to claim 2, wherein
- 2 said apparatus further comprises
- 3 second image transformation means for
- 4 repeatedly executing at least one of translation
- 5 processing (shifting) and rotation processing for the
- 6 first image located at the first initial position within
- 7 a predetermined range for every predetermined amount,
- 8 and outputting a first image after the processing,
- 9 second collation means for obtaining a
- 10 coincidence ratio by comparing/collating the first image
- 11 output from said second transformation means with the
- 12 second image every time said second image transformation
- 13 means performs processing, and
- storage means for storing a translation amount,
- 15 rotational angle, or translation amount and rotational

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- 16 angle of the first image from the first initial position
- 17 to a current position when the coincidence ratio output
- 18 from said second collation means becomes maximum, and
- said first image transformation means moves
- 20 the first image to a second initial position set by
- 21 adding the translation amount, rotational angle, or
- 22 translation amount and rotational angle stored in said
- 23 storage means to the first initial position, and
- 24 executes at least one of translation processing and
- 25 rotation processing for the resultant first image.
 - 23. An apparatus according to claim 22, wherein
 - 2 said apparatus further comprises image
 - 3 processing means for selecting one of contraction and
 - 4 expansion for the second image and performing a
 - 5 plurality of different image processes, and
 - 6 said storage means for storing the second
- 7 image output from said image processing means, and
- § said second collation means obtains a
- 9 coincidence ratio by comparing/collating the first image
- 10 output from said second image transformation means with
- 11 the second image output from said storage means every
- 12 time said second image transformation means performs
- 13 processing.
 - 24. An apparatus according to claim 22, wherein
 - 2 the range predetermined for said first image

- 3 transformation means is narrower than the range
- 4 predetermined for said second image transformation means.
 - 25. An apparatus according to claim 22, wherein
- 2 the translation amount, rotational angle, or translation
- 3 amount and rotational angle by which said second image
- 4 transformation means moves the first image for each
- 5 moving operation are larger than the translation amount,
- 6 rotational angle, or translation amount and rotational
- 7 angle by which said first image transformation means
- 8 moves the first image for each moving operation.
 - 26. An apparatus according to claim 22, wherein a
- 2 collation region in which the coincidence ratio is
- 3 obtained by said second collation means is smaller than
- 4 a collation region in which a coincidence ratio is
- 5 obtained by said first collation means.
- 27. An apparatus according to claim 3, wherein
- 2 said apparatus further comprises region
- 3 designation means for sequentially designating a
- 4 plurality of collation regions predetermined as regions
- 5 in which the first and second images are collated with
- 6 each other, and
- 5 said first collation means obtains coincidence
- 8 ratios by sequentially collating the first image output
- 9 from said image transformation means with the second

- 10 image within a collation region designated by said
- 11 region designation means every time said first image
- 12 transformation means performs image processing.
 - 28. An apparatus according to claim 27, wherein
- 2 said apparatus further comprises image
- 3 processing means for selecting one of contraction and
- 4 expansion for one of the first and second images and
- 5 performing a plurality of different image processes, and
- 6 said first collation means collates an output
- 7 from said image processing means with an image having
- B undergone no image processing.
 - 29. An image collation apparatus comprising:
- 2 first collation means for obtaining a
- 3 relationship between first and second images for each
- 4 collation unit by collating the first and second images
- 5 with each other;
- 6 minimum coincidence ratio extraction means for
- 7 obtaining a minimum coincidence ratio from coincidence
- 8 ratios in the relationship obtained from said first
- 9 collation means;
- determination means for determining that the
- 11 first and second images are identical, if the extracted
- 12 coincidence ratio is smaller than a predetermined
- 13 threshold; and
- region designation means for sequentially

- 15 designating a plurality of collation regions
- 16 predetermined as regions in which the first and second
- 17 images are collated with each other,
- 18 wherein said first collation means obtains
- 19 coincidence ratios by sequentially collating the first
- 20 and second images within the collation regions
- 21 designated by said region designation means.
 - 30. An apparatus according to claim 29, wherein
 - 2 said apparatus further comprises image
 - 3 processing means for selecting one of contraction and
 - 4 expansion for one of the first and second images and
 - 5 performing a plurality of different image processes, and
 - 6 said first collation means collates an output
 - 7 from said image processing means with an image having
- 8 undergone no image processing.
 - 31. An image collation method comprising:
- 2 the first collation step of obtaining a
- 3 coincidence ratio in a predetermined range between first
- 4 and second images in each collation unit by collating
- 5 the first and second images with each other;
- 6 the minimum coincidence ratio extraction step
- 7 of obtaining a minimum coincidence ratio from
- 8 coincidence ratios obtained in the first collation step;
- 9 and
- the determination step of determining that the

- 11 first and second images are identical, if the extracted
- 12 minimum coincidence ratio is smaller than a
- 13 predetermined threshold.
 - 32. A method according to claim 31, wherein
 - 2 the method further comprises the first image
 - 3 transformation step of repeatedly executing at least one
 - 4 of translation processing and rotation processing for
 - 5 the first image within a predetermined range for each
 - 6 collation unit, and
 - 7 in the first collation step, a coincidence
 - 8 ratio is obtained by collating the obtained first image
- 9 after image processing with the second image.
 - 33. A method according to claim 32, wherein
- 2 the method further comprises
- 3 the maximum coincidence ratio extraction step
- 4 of obtaining a maximum coincidence ratio from
- 5 coincidence ratios output in the first collation step,
- 6 and
- 7 the computation step of obtaining a difference
- 8 between the maximum coincidence ratio and the minimum
- 9 coincidence ratio, and
- in the determination step, it is determined
- 11 that the first and second images are identical, if the
- 12 difference is not less than a predetermined threshold.

34. A method according to claim 32, wher	ein
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- 2 the method further comprises
- 3 the maximum coincidence ratio extraction step
- 4 of obtaining a maximum coincidence ratio from
- 5 coincidence ratios obtained in the first collation step,
- 6 and
- 7 the computation step of obtaining a quotient
- 8 by dividing the maximum coincidence ratio by the minimum
- 9 coincidence ratio, and
- in the determination step, it is determined
- 11 that that the first and second images are identical, if
- 12 the quotient is not less than a predetermined threshold.
 - 35. A method according to claim 32, wherein
- 2 the method further comprises the maximum
- 3 coincidence ratio extraction step of obtaining a maximum
- 4 coincidence ratio from coincidence ratios obtained in
- 5 the first collation step, and
- in the determination step, it is determined
- 7 that the first and second images are identical, if the
- 8 maximum coincidence ratio is not less than a first
- 9 predetermined threshold and the minimum coincidence
- 10 ratio is smaller than a second predetermined threshold
- 11 (first threshold ≥ second threshold).
 - 36. A method according to claim 32, wherein
- 2 the method further comprises

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3	the second image transformation step of
4	repeatedly executing at least one image processing of
5	translation processing and rotation processing for the
6	first image located at a first initial position by a
7	predetermined amount within a predetermined range, and
8	obtaining the first image after image processing,
9	the second collation step of obtaining a
10	coincidence ratio by collating the first image after the
11	image processing with the second image every time image
12	processing is performed for the first image, and
13	the storage step of storing a translation
14	amount, rotational angle, or both a translation amount
15	and rotational angle of the first image from the first
16	information position to a current position when the
17	coincidence ratio becomes maximum, and
18	in the first image transformation step, the
19	first image is moved to a second initial position set by
20	adding the translation, rotational angle, or translation
21	amount and rotational angle stored in the storage step
22	to the first initial position, and at least one of
23	translation processing and rotation processing is

- 37. A method according to claim 36, wherein the
- 2 range predetermined in the first image transformation
- 3 step is narrower than the range predetermined in the
- 4 second image transformation step.

executed for the first image.

- 38. A method according to claim 36, wherein a
- 2 collation region in which the coincidence ratio is
- 3 obtained in the second collation step is smaller than a
- 4 collation region in which the coincidence ratio is
- 5 obtained in the first collation step.
 - 39. A method according to claim 36, wherein
- 2 the translation amount, rotational angle, or translation
- 3 amount and rotational angle by the first image is moved
- 4 in the second image transformation step for each moving
- 5 operation are larger than the translation amount,
- 6 rotational angle, or translation amount and rotational
- 7 angle by which the first image is moved in the first
- 8 image transformation step for each moving operation.
 - 40. A method according to claim 32, wherein
- 2 the method further comprises
- 3 the reference point detection step of
- 4 detecting reference points of the first and second
- 5 images located at the first initial position before the
- 6 respective steps, and
- 7 the correction amount computation step of
- 8 obtaining a translation amount, rotational angle, or
- 9 both translation amount and rotational angle of the
- 10 first image which is required to make the reference
- 11 points of the first and second image coincide with each

12 other, and

- the first image transformation step comprises
- 14 the step of moving the first image to a second initial
- 15 position set by adding the translation amount,
- 16 rotational angle, or translation amount and rotational
- 17 angle obtained in the correction amount computation step
- 18 to the first initial position, and executing at least
- 19 one of translation processing and rotation processing
- 20 for the first image.
 - 41. A method according to claim 36, wherein
 - 2 the method further comprises
 - 3 the reference point detection step of
 - 4 detecting reference points of the first and second
 - 5 images located at the first initial position before the
 - 6 respective steps, and
 - 7 the correction amount computation step of
 - 8 obtaining a translation amount, rotational angle, or
 - 9 both translation amount and rotational angle of the
- 10 first image which is required to make the reference
- 11 points of the first and second image coincide with each
- 12 other, and
- 13 the second image transformation step comprises
- 14 the step of moving the first image to a new first
- initial position set by adding the translation amount,
- 16 rotational angle, or translation amount and rotational
- angle obtained in the correction computation step to the

- 18 first initial position, and executing at least one of
- 19 translation processing and rotation processing for the
- 20 first image.
 - 42. A method according to claim 33, wherein
 - 2 the method further comprises the region
 - 3 designation step of sequentially designating a plurality
 - 4 of collation regions predetermined as regions in which
 - 5 the first and second images are collated with each other,
 - 6 and
 - 7 coincidence ratios are obtained by
 - 8 sequentially collating the first and second images with
 - 9 each other in the collation regions.
 - 43. A method according to claim 42, wherein
 - 2 the method further comprises the image
 - 3 processing step of selecting one of contraction and
 - 4 expansion for one of the first and second images and
 - 5 performing a plurality of different image processes, and
 - 6 the first and second images are collated with
 - 7 each other by collating the image having undergone the
 - 8 image processing with an image having undergone no image
 - 9 processing.
 - 44. An image collation method comprising:
- the first collation step of obtaining a
- 3 relationship between first and second images for each

- 4 collation unit by collating the first and second images
- 5 with each other;
- the minimum coincidence ratio extraction step
- 7 of obtaining a minimum coincidence ratio from
- 8 coincidence ratios in the relationship obtained in the
- 9 first collation step;
- 10 the determination step of determining that the
- 11 first and second images are identical, if the extracted
- 12 coincidence ratio is smaller than a predetermined
- 13 threshold; and
- 14 the region designation step of sequentially
- 15 designating a plurality of collation regions
- 16 predetermined as regions in which the first and second
- 17 images are collated with each other,
- 18 wherein coincidence ratios are obtained by
- 19 sequentially collating the first and second images
- 20 within the collation regions.
 - 45. A method according to claim 44, wherein
 - 2 the method further comprises the image
 - 3 processing step of selecting one of contraction and
 - 4 expansion for one of the first and second images and
 - 5 performing a plurality of different image processes, and
 - the first and second images are collated with
 - 7 each other by collating the image having undergone the
 - 8 image processing with an image having undergone no image
 - 9 processing.

- 46. A recording medium storing an image collation
- 2 program for causing a computer to execute
- 3 the first collation step of obtaining a
- 4 coincidence ratio in a predetermined range between first
- 5 and second images in each collation unit by collating
- 6 the first and second images with each other,
- 7 the minimum coincidence ratio extraction step
- 8 of obtaining a minimum coincidence ratio from
- 9 coincidence ratios obtained in the first collation step,
- 10 and
- the determination step of determining that the
- 12 first and second images are identical, if the extracted
- 13 minimum coincidence ratio is smaller than a
- 14 predetermined threshold.
 - 47. A medium according to claim 46, wherein
 - 2 the program further comprises the first image
 - 3 transformation step of repeatedly executing at least one
 - 4 of translation processing and rotation processing for
 - 5 the first image within a predetermined range for each
 - 6 collation unit, and
- 7 in the first collation step, a coincidence
- 8 ratio is obtained by collating the obtained first image
- 9 after image processing with the second image.
 - 48. A medium according to claim 46, wherein

	2	the	program	further	comprises
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- 3 the maximum coincidence ratio extraction step
- 4 of obtaining a maximum coincidence ratio from
- 5 coincidence ratios output in the first collation step,
- 6 and
- 7 the computation step of obtaining a difference
- 8 between the maximum coincidence ratio and the minimum
- 9 coincidence ratio, and
- in the determination step, it is determined
- 11 that the first and second images are identical, if the
- 12 difference is not less than a predetermined threshold.
 - 49. A medium according to claim 46, wherein
 - 2 the program further comprises
 - 3 the maximum coincidence ratio extraction step
- 4 of obtaining a maximum coincidence ratio from
- 5 coincidence ratios obtained in the first collation step,
- 6 and
- 7 the computation step of obtaining a quotient
- 8 by dividing the maximum coincidence ratio by the minimum
- 9 coincidence ratio, and
- in the determination step, it is determined
- 11 that that the first and second images are identical, if
- 12 the quotient is not less than a predetermined threshold.
 - 50. A medium according to claim 46, wherein
 - 2 the program further comprises the maximum

- 3 coincidence ratio extraction step of obtaining a maximum
- 4 coincidence ratio from coincidence ratios obtained in
- 5 the first collation step, and
- in the determination step, it is determined
- 7 that the first and second images are identical, if the
- 8 maximum coincidence ratio is not less than a first
- 9 predetermined threshold and the minimum coincidence
- 10 ratio is smaller than a second predetermined threshold
- 11 (first threshold ≥ second threshold).
 - 51. A medium according to claim 46, wherein
- 2 the program further comprises
- 3 the second image transformation step of
- 4 repeatedly executing at least one image processing of
- 5 translation processing and rotation processing for the
- 6 first image located at a first initial position by a
- 7 predetermined amount within a predetermined range, and
- 8 obtaining the first image after image processing,
- 9 the second collation step of obtaining a
- 10 coincidence ratio by collating the first image after the
- image processing with the second image every time image
- 12 processing is performed for the first image, and
- 13 the storage step of storing a translation
- 14 amount, rotational angle, or both a translation amount
- 15 and rotational angle of the first image from the first
- 16 information position to a current position when the
- 17 coincidence ratio becomes maximum, and

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- 18 in the first image transformation step, the
- 19 first image is moved to a second initial position set by
- 20 adding the translation, rotational angle, or translation
- 21 amount and rotational angle stored in the storage step
- 22 to the first initial position, and at least one of
- 23 translation processing and rotation processing is
- 24 executed for the first image.
 - 52. A medium according to claim 51, wherein the
- 2 range predetermined in the first image transformation
- 3 step is narrower than the range predetermined in the
- 4 second image transformation step.
 - 53. A medium according to claim 51, wherein a
- 2 collation region in which the coincidence ratio is
- 3 obtained in the second collation step is smaller than a
- 4 collation region in which the coincidence ratio is
- obtained in the first collation step.
 - 54. A medium according to claim 51, wherein the
- 2 translation amount, rotational angle, or translation
- 3 amount and rotational angle by the first image is moved
- 4 in the second image transformation step for each moving
- 5 operation are larger than the translation amount,
- 6 rotational angle, or translation amount and rotational
- 7 angle by which the first image is moved in the first
- image transformation step for each moving operation.

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for the first image.

	55. A medium according to claim 46, wherein
2	the program further comprises
3	the reference point detection step of
4	detecting reference points of the first and second
5	images located at the first initial position before the
6	respective steps, and
7	the correction amount computation step of
8	obtaining a translation amount, rotational angle, or
9	both translation amount and rotational angle of the
10	first image which is required to make the reference
11	points of the first and second image coincide with each
12	other, and
13	the first image transformation step comprises
14	the step of moving the first image to a second initial
15	position set by adding the translation amount,
16	rotational angle, or translation amount and rotational
17	angle obtained in the correction amount computation step
18	to the first initial position, and executing at least
19	one of translation processing and rotation processing

A medium according to claim 46, wherein 56. 2 the program further comprises 3 the reference point detection step of detecting reference points of the first and second images located at the first initial position before the

- 6 respective steps, and
- 7 the correction amount computation step of
- 8 obtaining a translation amount, rotational angle, or
- 9 both translation amount and rotational angle of the
- 10 first image which is required to make the reference
- 11 points of the first and second image coincide with each
- 12 other, and
- the second image transformation step comprises
- 14 the step of moving the first image to a new first
- 15 initial position set by adding the translation amount,
- 16 rotational angle, or translation amount and rotational
- 17 angle obtained in the correction computation step to the
- 18 first initial position, and executing at least one of
- 19 translation processing and rotation processing for the
- 20 first image.